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Interactive demonstration on the use of existing apps on mobile technologies to teach basic photographic techniques to participants who are blind, visually impaired and sighted together

A demonstration of an exercise using apps and cameras on iOS and Android platforms to image “the body” and handwriting

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Abstract— The demonstration employs mainstream apps and settings on mobile devices to teach photography to participants who are blind, visually impaired and sighted. The demonstration uses principles of universal design for learning. Participants bring their own devices: iOS and Android.

Keywords—*blind; mobile technology; universal design; photography*

I. INTRODUCTION

A. A Summary of the Demonstration

This demonstration features an exemplar exercise from a workshop providing an introduction to photography. This workshop was designed to teach photography to participants who were blind, visually impaired and sighted in the same group. The workshop used existing mainstream apps on mobile devices, such as tablets and smartphones, to teach: basic imaging techniques; the use of cameras for understanding and accessing visual culture; and soft-skills that could be applied to educational, work and social settings.

During the demonstration, participants are invited to work along with the demonstration on their own mobile devices, and prepare images that can be shared using live social media.

The demonstration consists of the following tasks:

- Getting in partnerships / small groups of maximum four
- Introduction and familiarization with settings
- Taking a picture of your partner, and verbally describing the image without showing it to your partner
- Close up of part of your face, followed by verbal description to your partner
- Picture of your partner’s legs and arms from a distance

- Verbal description of these body parts to your partner
- Pictures of your arms and legs close up – this can focus on a feature, such as a finger, hand, painted toe or foot
- Verbal description of your image to your partner
- You should take an image of something on your body close up, such as a ring, necklace or tattoo
- Verbal description of the image to your partner
- Finally, you must take an image of a body part on you or your partner that they would not normally see, such as your back, your heel, or your nose from beneath
- This should then be verbally described to your partner
- Upload images to social media, linking in with the other members of the audience and demonstrators

The purpose of these exercises is for the participants to focus on:

- Parts of the body you see, but do not really take much notice of on a daily basis
- Parts of the body that no-one sees
- Items you have added to your body for aesthetic purposes, but rarely focus on
- The concept of distance beyond reach – far and near images, and foreshortening (i.e. items in the foreground being larger, and items in the background being smaller)
- The conscious description of scenes and images you take for granted

Although the exercise is designed to include people with impairments of sight, it is also designed to include people with all levels of vision. The exercise is formulated according to principles of universal design for learning [1], in order to instruct participants. Thus, participants work in pairs to help each other develop images on their own devices, and verbally image photographs when uploading to social media.

B. Aims and Objectives

The exercise is designed with the following aims in mind:

- To demonstrate relatively simple techniques for creating an understanding of visual culture as a fully inclusive activity
- To demonstrate that mainstream technologies can be used for teaching inclusive workshops, lessening the need for separate assistive technologies
- To encourage users, educators and trainers to design training and demonstrations for people with all forms of physical and learning needs

The exercise is designed with the following objectives in mind:

- To demonstrate the nature of soft skills through development of photographic skills
- To demonstrate the potential of mainstream apps in education, training and cultural heritage
- To encourage a process of thinking about technology for people with disabilities and other's differing learning needs as inclusive technologies (i.e. mainstream technologies designed to include all users, no matter what their needs) rather than assistive technologies (i.e. technologies that are designed specifically for people with physical and learning disabilities).

II. RATIONALE AND CONTEXT OF THE DEMONSTRATION

Hayhoe [2], [3], [4], [5] argues that the technology industry and associated researchers need to become more innovative in order to provide inclusion for people with disabilities – this can include educational inclusion, mobility and communication needs. In the past, he argues, assistive and accessible technology has been designed as a “technology apart.” This has led people with disabilities to be the focus of separate, specialist technology companies and device development.

Thus, although mainstream commercial technology companies have not until recently provided physical exclusion to institutions such as schools and colleges, they are partially responsible for excluding people with different needs through

the use of devices. This has led to the study of assistive and accessible technology and education as a separate academic discipline, with its own separate literature (see for example [6], [7], [8], [9], [10]).

In more recent years, educators have experimented with the use of mainstream technologies as tools of inclusion in their teaching and learning [11], including the authors' own courses (see for example, [12], [13], [14]). The demonstration is part of a recent workshop that taught all people – including those with sight – as if they had a separate need.

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